

REMARKS

Claim Rejections - 35 U.S.C. § 102

The Examiner has rejected claims 1-5 and 7 under 35 U.S.C. § 102(b) as being anticipated by European Patent Application EP 658,927 to Kuke. This rejection is respectfully traversed.

It is well settled that in order to establish a *prima facie* case of anticipation under 35 U.S.C. § 102, the Examiner must demonstrate that each and every element of the rejected claims is taught or disclosed in a single prior art reference. In that regard, Applicant respectfully asserts that Kuke fails to teach each and every element of, for example, claim 1. Therefore, Kuke cannot anticipate claim 1.

Claim 1 specifically recites:

A method for producing micromachined devices for use in Microelectromechanical Systems (MEMS), comprising the steps of:

providing a crystalline wafer with a front plane,

processing from said wafer at least one micromachined device comprising at least one elongated opening or cavity, the opening or cavity having a longitudinal axis, so that an angle is formed by said longitudinal axis and a line formed by intersection of the front plane of the wafer and a cleavage plane, said cleavage plane being defined as a plane along which cleavage of the wafer is most likely to occur. (*Emphasis added*)

The method of claim 1 relates to the manufacture of micro-machined devices with a longitudinal access. Contrary to the Examiner's assertion, Kuke has nothing at all to do with the manufacture of such micro-machined devices. Kuke, instead, relates to the manufacture of a recess for accommodation of an element in a silicon motherboard (see first and fifth paragraphs of Kuke's "DESCRIPTION.") More specifically, Kuke relates to the manufacture of multi-chip modules where a recess is formed in a semiconductor component for the insertion of another semiconductor

component, with a stated benefit of the procedure of Kuke being a decrease in-line inductance between components.

Kuke contains no discussion of forming its recess with “**a longitudinal axis, so that an angle is formed by said longitudinal axis and a line formed by intersection of the front plane of the wafer and a cleavage plane.**” In this regard, the longitudinal axis of the cavity of claim 1 is not parallel with a cleavage plane of the substrate. In contrast, Kuke describes forming a recess to accommodate an element in a motherboard where the sides of the opening (i.e., longitudinal axis) are parallel with the <100> direction, a cleavage plane. (See abstract of Kuke.) Kuke employs such a technique due to the dependence of the etching rate on the crystal orientation in the <100> direction in order to achieve a satisfactory etch profile. (See Kuke, Description, p. 2, third paragraph.) Therefore, based on the foregoing, Kuke does not teach, describe or disclose all the elements of claim 1 and, in fact, **Kuke teaches an exact opposite approach with respect to the orientation of the longitudinal axis with respect to cleavage planes.** In this regard, use of the approach disclosed in Kuke would be disadvantageous for the manufacture of MEMS devices, as such devices would be prone to cleaving along the longitudinal axis if that axis were parallel with the <100> direction. Based on the foregoing, Kuke does not anticipate claim 1, and the rejection should be withdrawn.

Claims 2-5 and 7 depend ultimately from claim 1, and include all the limitations of that claim and any intervening claims. Therefore, these claims are patentable over Kuke on the same basis as claim 1 and, thus, the rejection should be withdrawn.

Claim Rejections – 35 U.S.C. § 103

The Examiner has rejected claims 6 and 8 under 35 U.S.C. § 103(a) as unpatentable over Kuke in view of U.S. Patent No. 6,440,616 to Imaizumi et al (hereafter “Imaizumi”). The Examiner has also rejected, under § 103(a), claims 9, 12, 15 and 18 on Kuke in view of U.S. Patent No. 6,440,616 to Izuha et al (hereafter “Izuha”); claims 10, 11, 13, 14, 16, 17 and 19-21 on Kuke in view of Izuha as applied to claims 1-5, 7, 9, 12, 15 and 18 and further in view of U.S. Patent No. 6,245,584 to Marinaro et al. (hereafter “Marinaro”); claims 22 and 23 on Kuke in view of U.S. Patent 6,213,050 to Liu et al. (hereafter “Liu”). These rejections are now respectfully addressed.

It is also well settled that in order to establish a *prima facie* case of unpatentability under 35 U.S.C. § 103, there must be some teaching or suggestion in the prior art to combine the references to produce the claimed invention. Applicants respectfully assert that the various combinations proposed by the Examiner provide no such teaching or suggestion and, therefore, do not render claims 6, 8 and 9-23 obvious.

In this regard, as was discussed above with respect to claim 1, Kuke (the primary reference in all the proposed combinations) teaches forming an opening where the longitudinal axis of the opening is along a line coincident with a cleavage plane of a substrate (i.e., the <100> direction), while claim 1 recites a method for forming a cavity with a longitudinal axis that is not coincident with a cleavage plane. Thus, without addressing the merits of the Examiner’s comments with respect to Imaizumi, Izuha, Marinaro and Liu, which are not conceded, Applicants respectfully assert that the proposed combinations teach away from the method recited in claim 1. Therefore, claim 1 is not obvious in view of Kuke, or in view of any of the combinations proposed by the Examiner.

Claims 6, 8 and 9-21 depend ultimately from claim 1. Claims 22 and 23 are product by process claims that call out the method of claim 1. Therefore, these claims include all the limitations of claim 1, and any intervening claims, and are not rendered obvious on the same basis as claim 1. Thus, Applicants respectfully request that the Examiner withdraw the rejection of claims 6, 8 and 9-23.

Conclusion

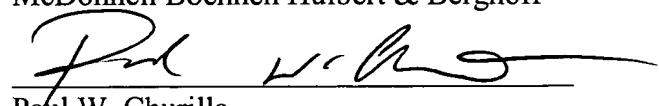
Based on the foregoing, Applicants believe that all claims pending in the above referenced application are in condition for allowance. Therefore, an indication of such allowance is respectfully requested. If there are any additional matters that the Examiner believes may be resolved by telephone, she is invited to contact the undersigned at phone number (360) 379-6514.

Respectfully Submitted,

McDonnell Boehnen Hulbert & Berghoff

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CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8

The undersigned hereby certifies that the foregoing RESPONSE TO OFFICE ACTION MAILED ON APRIL 8, 2003 is being deposited as first class mail, postage prepaid, in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 7 day of August 2003.


Paul W. Churilla